No. 8300167

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Pure-Seed Testing, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

PERENNIAL RYEGRASS

'Birdie II'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of* Washington *this* 28th *day of* September *in the year of our Lord one thousand nine hundred and* eighty-four.

Attest:

Kenneth A. [illegible]
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

John R Block
Secretary of Agriculture

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: *See Reverse.*

FORM APPROVED
OMB NO. 40-R3822

No certificate for plant variety protection may be issued unless a completed application form has been received (5 U.S.C. 553).

1a. TEMPORARY DESIGNATION OF VARIETY	1b. VARIETY NAME	FOR OFFICIAL USE ONLY
2ED	Birdie II	PV NUMBER 8300167
2. KIND NAME: perennial ryegrass	3. GENUS AND SPECIES NAME: Lolium perenne	FILING DATE: 8/15/83 — TIME: 2:30 XXAM.X P.M.
4. FAMILY NAME (BOTANICAL): Gramineae	5. DATE OF DETERMINATION: Sept., 1982	FEE RECEIVED: $ 1,000 / $ 500.00 — DATE: 8/15/83 / 7/25/84

6. NAME OF APPLICANT(S)	7. ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)*	8. TELEPHONE AREA CODE AND NUMBER
Pure-Seed Testing, Inc.	P. O. Box 449, 73 West G Street Hubbard, OR 97032	503-981-7333

9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: *(Corporation, partnership, association, etc.)*	10. IF INCORPORATED, GIVE STATE AND DATE OF INCORPORATION	11. DATE OF INCORPORATION
Corporation	Oregon	June 2, 1974

12. NAME AND MAILING ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS:

Dr. William A. Meyer, Pure-Seed Testing, Inc.
P. O. Box 449, Hubbard, OR 97032

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

- [X] 13A. Exhibit A, Origin and Breeding History of the Variety *(See Section 52 of the Plant Variety Protection Act.)*
- [X] 13B. Exhibit B, Novelty Statement.
- [X] 13C. Exhibit C, Objective Description of the Variety *(Request form from Plant Variety Protection Office.)*
- [X] 13D. Exhibit D, Additional Description of the Variety.

14a. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? *(See Section 83(a). (If "Yes," answer 14B and 14C below.)* [ ] YES [X] NO

14b. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?	14c. IF "YES," TO 14B, HOW MANY GENERATIONS OF PRODUCTION BEYOND BREEDER SEED?
[X] YES [ ] NO	[X] FOUNDATION [ ] REGISTERED [X] CERTIFIED

15a. DID THE APPLICANT(S) FILE FOR PROTECTION OF THIS VARIETY IN OTHER COUNTRIES? [ ] YES [ ] NO *(If "Yes," give name of countries and dates.)*

15b. HAVE RIGHTS BEEN GRANTED THIS VARIETY IN OTHER COUNTRIES? [ ] YES [X] NO *(If "Yes," give name of countries and dates.)*

16. DOES THE APPLICANT(S) AGREE TO THE PUBLICATION OF HIS/HER (THEIR) NAME(S) AND ADDRESS IN THE OFFICIAL JOURNAL? [X] YES [ ] NO

17. The applicant(s) declare(s) that a viable sample of basic seed of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

8/10/83
(DATE)

William A. Meyer
(SIGNATURE OF APPLICANT)

(DATE)

(SIGNATURE OF APPLICANT)

FORM GR-470 (1-78)

INSTRUCTIONS

GENERAL: Send an original copy of the application and exhibits, at least 2,500 viable seeds, and $500 fee ($250 filing fee and $250 examination fee) to U.S. Dept. of Agriculture, Agricultural Marketing Service, Livestock, Poultry, Grain and Seed Division, Plant Variety Protection Office, National Agricultural Library Building, Beltsville, Maryland 20705. (See section 180.175 of the Regulations and Rules of Practice.) Retain one copy for your files. All items on the face of the form are self-explanatory unless noted below.

ITEM

5 Give the date the applicant determined that he had a new variety based on (1) the definition in section 41(a) of the Act and (2) the date a decision was made to increase the seed.

13a Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method; (2) the details of subsequent stages of selection and multiplication; (3) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified and (4) evidence of uniformity and stability.

13b Give a summary statement of the variety's novelty. Clearly state how this novel variety may be distinguished from all other varieties in the same crop. If the new variety most closely resembles one or a group of related varieties: (1) identify these varieties and state all differences objectively; (2) attach statistical data for characters expressed numerically and demonstrate that these differences are significant; and (3) submit, if helpful, seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty.

13c Fill in the Exhibit C, Objective Description form, for all characteristics for which you have adequate data.

13d Describe any additional characteristics that are not described, or whose description cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the description of characteristics that are difficult to describe, such as, plant habit, plant color, disease resistance, etc.

14a If "YES" is specified (seed of this variety be sold by variety name only as a class of certified seed) the applicant may NOT reverse his affirmative decision after the variety has either been sold and so labeled, his decision published, or the certificate has been issued. However, if the applicant specified "NO," he may change his choice. (See section 180.16 of the Regulations and Rules of Practice.)

15a See section 42 of the Plant Variety Protection Act and section 180.7 of the Regulations and Rules of Practice.

EXHIBIT A.

ORIGIN AND BREEDING HISTORY OF
BIRDIE II PERENNIAL RYEGRASS

1. Birdie II is an advanced generation synthetic variety resulting from five cycles of recurrent selection. Two sources of stem rust resistant germplasm collected from old turf areas in St. Louis and Washington D.C. were used as donor parents in a modified back crossing program with selected clones of Birdie perennial ryegrass.

The seedlings from these crosses were then moved to space plant nurseries to initiate cycles of phenotypic selection for crown and stem rust, leaf spot resistance, attractive dark green color, and erect seed head orientation with reduced lodging. Each cycle was followed by progeny testing in seeded turf trials to evaluate mowing quality and leaf spot and red thread resistance. Twelve attractive, stem and crown rust resistant plants were selected as the parents of Birdie II. 2ED was the experimental designation of Birdie II.

2. Breeder seed of Birdie II was produced from an isolated nursery of the 12 rust resistant clones. Seed propagation is limited to two generations of increase from breeder seed -- one each of foundation and certified.

3. Birdie II is a stable and uniform variety. No off-type plants or variants have been observed in the reproduction or multiplication of Birdie II perennial ryegrass. Birdie II and the progenies of the 12 parental clones have produced turf of good quality and uniformity.

EXHIBIT B. 8300167

NOVELTY STATEMENT ON
BIRDIE II PERENNIAL RYEGRASS

Birdie II perennial ryegrass is most similar to Birdie perennial ryegrass. However, close comparisons show the two differ in the following characteristics:

1. Birdie II has a mature plant height that is 9 cm or more shorter than Birdie (Table 1.).

2. Birdie II has resistance to leaf spot and stem rust and red thread, while Birdie is susceptible (Table 6, 8, 9).

3. Birdie II has a darker bluegreen color (Royal Horticultural Society Chart 137B) than Birdie (RHSC 137C) (Table 7).

FORM APPROVED: OMB NO. 40-R3712

FORM GR-470-36
(9-76)

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782

OBJECTIVE DESCRIPTION OF CULTIVARS
RYEGRASS
(Lolium spp.)

NAME OF APPLICANT(S)	VARIETY NAME OR TEMPORARY DESIGNATION
Pure-Seed Testing, Inc.	Birdie II (2ED) perennial ryegrass
ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code) P. O. Box 449, 73 West G Street Hubbard, OR 97032	FOR OFFICIAL USE ONLY PVPO NUMBER 8300167

Place the appropriate number that describes the varietal character of this variety in the boxes below. Place a zero in first box (e.g. [0][8][9] or [0][9])when number if either 99 or less or 9 or less. Descriptions of characters should represent those that are typical for the variety. Ranges may be given also. Measured data should be for SPACED PLANTS. Give additional description for all characteristics that cannot be adequately described in the form below. Append all pertinent comparative trial and evaluation data.

1. SPECIES:

[2] 1 = L. MULTIFLORUM (annual or Italian: includes Westerwoldicum) 2 = L. PERENNE (perennial) 3 = L. RIGIDUM (includes Wimmera)
4 = HYBRID (of species) _____ 5 = OTHER *(Specify)* _____

2. PLOIDY:

[1] 1 = DIPLOID 2 = TETRAPLOID 3 = OTHER *(Specify)* _____

3. DURATION:

[3] 1 = ANNUAL OR BIENNIAL 2 = SHORT LIVED PERENNIAL (3-4 years) 3 = PERENNIAL (more than 4 years)

STANDARD CULTIVARS

1 = GULF 2 = WIMMERA 62 3 = LINN 4 = PELO
5 = NORLEA 6 = ABERYSTWYTH S-23 7 = MANHATTAN 8 = PENNFINE

4. MATURITY (50% HEADED) Use standards from above for comparison: Table 3.

[3] 1 = VERY EARLY 3 = EARLY 5 = MEDIUM 7 = LATE 9 = VERY LATE

[1] DAYS EARLIER THAN . . . . . [8] STANDARD CULTIVAR

[ ] DAYS LATER THAN . . . . . [ ] STANDARD CULTIVAR

5. MATURE PLANT HEIGHT (Use standard cultivars from above) :

[77.8] CM. HIGH [9] CM. SHORTER THAN . . . . . [8] STANDARD CULTIVAR

[ ] CM. TALLER THAN . . . . . [ ] STANDARD CULTIVAR

6. PERCENT WINTER DAMAGE (estimated as percent of the area appearing dead). Use standard cultivars from above for comparison:

[0] PERCENT DAMAGE OF APPLICATION CULTIVAR

[0] PERCENT DAMAGE OF . . . . . [7] STANDARD CULTIVAR

7. TURF DENSITY Use standard cultivars from above:

[410] TILLERS PER 100 SQ. CM.

[ ] LESS TILLERS PER 100 SQ. CM. THAN . . . . [ ] STANDARD CULTIVAR

[ ] MORE TILLERS PER 100 SQ. CM. THAN . . . [ ] STANDARD CULTIVAR

8. FLAG LEAF (at full growth) Use standard cultivars from above:

[16.2] CM. LENGTH (from ligule to tip) [4.4] MM. WIDTH (at widest point)

[1.8] CM. SHORTER THAN . . . . . [8] STANDARD CULTIVAR

[3] FLAG LEAF AT BOOT STAGE: 1 = DEFLEXED 3 = RECURVED 5 = HORIZONTAL 7 = SEMI-ERECT 9 = ERECT

[ ] CM. LONGER THAN . . . . . [ ] STANDARD CULTIVAR

[ ] MM. NARROWER THAN . . . . . [ ] STANDARD CULTIVAR

[.6] MM. WIDER THAN . . . . . [8] STANDARD CULTIVAR

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EXHIBIT D.

ADDITIONAL DESCRIPTION OF
BIRDIE II PERENNIAL RYEGRASS

Birdie II is a leafy, attractive, persistent, turf-type variety with an early maturity. It is capable of producing a dense, fine textured, medium low growing turf with a dark bluegreen color (Table 7). Birdie II has excellent seedling vigor, leaf spot resistance (incited by Drechslera spp.) and the range of soil and climatic adaptions of Birdie perennial ryegrass (Tables 4, 5, 8). It has resistance to stem rust (Puccinia graminis), crown rust (P. coronata), brown patch (Rhizoctonia solani) and red thread (Laetisaria fuciformis) (Tables 4, 5, 6, 8, 9). Birdie II has shown improved heat and summer performance, mowing qualities and very good performance for overseeding dormant bermudagrass in the southern U.S. (Table 10).

TABLE 1.

MORPHOLLOGICAL MEASUREMENTS TAKEN JULY, 1983
ON PERENNIAL RYEGRASSES NEAR HUBBARD, OREGON
IN SEED YIELD TRIALS SEEDED IN THE FALL OF 1981 AND 1982.

CULTIVAR	81 TRIAL 83 DATA PLANT HEIGHT CM	STAN. ERROR OF MEAN	82 TRIAL 83 DATA PLANT HEIGHT CM	STAN. ERROR OF MEAN
Birdie II	75.3	1.2	77.8	0.9
Birdie	88.0	0.5	87.0	0.9
Pennfine	88.7	1.4	87.4	1.5


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TABLE 2.

MORPHOLLOGICAL MEASUREMENTS TAKEN JULY, 1983
ON PERENNIAL RYEGRASSES NEAR HUBBARD, OREGON
IN SEED YIELD TRIALS SEEDED IN THE FALL OF 1982

CULTIVAR	SPIKE LENGTH CM	STAN. ERROR OF MEAN	FLAG LEAF LENGTH CM	STAN. ERROR OF MEAN	FLAG LEAF WIDTH MM	STAN. ERROR OF MEAN	GLUME LENGTH MM	STAN. ERROR OF MEAN
Birdie II	19.6	0.5	16.2	0.5	4.4	0.2	8.7	0.4
Birdie	22.5	0.8	19.2	0.7	4.0	0.2	8.5	0.5
Pennfine	22.3	0.6	19.0	0.6	3.8	0.2	8.4	0.3


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TABLE 3.

HEADING DATES OF PERENNIAL RYEGRASSES
SEEDED IN SEED YIELD TRIALS NEAR HUBBARD, OREGON
IN THE FALL OF 1981 AND 1982

	50% HEADING DATES			
	1981 TRIAL		1982 TRIAL	
			NORTH	SOUTH
CULTIVAR	1982	1983	1983	1983
Birdie II	5/21	5/16	5/18	5/18
Birdie	5/22	5/19	5/19	5/19
Pennfine	5/22	5/18	5/19	5/19

TABLE 4.

PERFORMANCE OF PERENNIAL RYEGRASSES
IN TURF TRIALS SEEDED IN NEW JERSEY AND MARYLAND
IN THE FALL OF 1980, 1981, AND 1982 AND
MAINTAINED AT MODERATE FERTILITY

TQ = TURF QUALITY 9-1 (9=best)

	NEW JERSEY			MARYLAND	
	1981 SEEDING	1982 SEEDING		1980 SEEDING	
CULTIVAR	1982 AVE. TQ	1982 AVE. TQ	DEC. 1982 LEAF SPOT 9-1 (9=best)	1981 AVE. TQ	CROWN RUST 9-1 (9=best)
Birdie II	5.9	6.6	8.0	7.0	7.3
Birdie	5.6	5.2	4.8		
Pennfine	5.2	3.4	4.3	6.8	5.7

TABLE 5.

REACTIONS OF PERENNIAL RYEGRASSES TO CROWN RUST
IN SELOMMES AND LECTOURE, FRANCE IN 1982

CROWN RUST RATING 9-1 (9=Poor)

CULTIVAR	SELOMMES, 1982		LECTOURE, 1982	
	8/21	9/21	8/24	9/21
Birdie II	1.0	1.0	1.5	3.0
Manhattan	5.2	7.0	3.9	8.2
Elka	1.0	3.0	3.5	7.0
Omega	7.0	9.0	7.0	9.0

TABLE 6.

LEAF SPOT REACTION AND TURF PERFORMANCE
OF PERENNIAL RYEGRASSES IN TRIALS NEAR HUBBARD, OREGON
SEEDED IN THE FALL 1981 AND 1982
MAINTAINED AT MODERATE FERTILITY AND A 1¼" CUTTING HEIGHT

	TURF QUALITY 9-1 (9=best)		LEAF SPOT RESISTANCE 9-1 (9=best)	
	1981 TRIAL	1982 TRIAL	1981 TRIAL	1982 TRIAL
CULTIVAR	1982 AVE.	1983 AVE.	3/1/82	1/19/83
Birdie II	6.3	7.1	7.0	7.3
Birdie	5.4	5.7	4.0	4.0
Pennfine	5.7	4.4	4.0	2.7
LSD @ 0.05	0.96	0.87	0.78	0.80

TABLE 7.

COLOR RATINGS AND TILLER DENSITIES OF PERENNIAL RYEGRASSES IN TURF TRIALS SEEDED FALL, 1982 NEAR HUBBARD, OREGON MAINTAINED AT MODERATE FERTILITY AND 1¼" CUTTING HEIGHT

CULTIVAR	ROYAL HORTICULTURAL SOCIETY CHART 8/2/83	TILLERS/100 SQ. CM.
Birdie II	137B	410
Birdie	137C	280

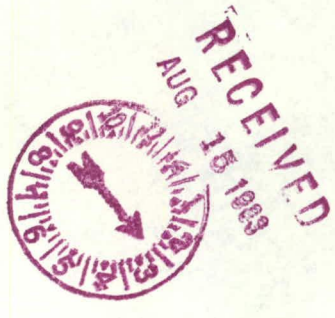
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TABLE 8.

STEM RUST REACTION OF PERENNIAL RYEGRASSES
IN SEED YIELD TRIALS NEAR HUBBARD, OREGON
IN 1982 AND 1983

	STEM RUST RATING 9-1 (9=best)			
CULTIVAR	FALL 1981 SEEDING 7/23/82	FALL 1981 SEEDING 6/23/83	FALL 1982 NORTH SEEDING 6/23/83	FALL 1982 SOUTH SEEDING 6/23/83
Birdie II	9.0	9.0	8.75	8.75
Birdie	3.0	3.5	2.0	3.0
Pennfine	2.0	3.5	2.5	3.0
LSD @ 0.05	1.12	1.23	0.81	0.94


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TABLE 9.

RED THREAD REACTION OF PERENNIAL RYEGRASSES
IN TURF TRIALS NEAR HUBBARD, OREGON
SEEDED IN SEPT. OF 1980, 1981 AND 1982
MAINTAINED AT MODERATE FERTILITY AND 1¼" CUTTING HEIGHT

	RATINGS FOR RED THREAD RESISTANCE		
	FALL, 1980 SEEDING	FALL, 1981 SEEDING	FALL, 1982 SEEDING
	% RED THREAD	% RED THREAD	1-9 (9=best)
CULTIVAR	2/4/83	1/13/83	7/29/83
Birdie II	9.3%	4%	7.3
Birdie	20.3%	17%	5.3
2DF	23.3%	28%	3.3
Pennfine	18.3%	32%	4.0
LSD @ 0.05	10.3%	11.7%	1.43

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TABLE 10.

PERENNIAL RYEGRASS YIELD TRIALS AND
TURF TRIALS NEAR HUBBARD, OR
Disease Ratings 9-1 (9=best)

CULTIVAR	RED THREAD REACTION FALL, 1982 TURF SEEDING	STEM RUST FALL, 1982 SOUTH SEEDING 6/23/83	50% HEADING DATES 1983	1984
Birdie II	7.30	8.75	5/18	5/17
All*Star	4.60	4.00	5/22	5/23
LSD @ 0.05	1.43	0.94		